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EXAMINER

RYMAN, DANIEL J

ART UNIT

PAPER NUMBER

2665

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Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/577,814

Applicant(s)

ROBERTS ET AL.

Examiner

Daniel J. Ryman

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 25 May 2000.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-41 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9, 13-24, 28, and 31-41 is/are rejected.
- 7) ☒ Claim(s) 10-12, 25-27, 29 and 30 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 May 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2 and 4.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Drawings*

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: ref. 42 (see page 23, line 14 and Fig. 3); ref. 46 (see page 31, line 22 and Fig. 5); and ref. 58 (see page 33, line 26 and Fig. 5). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.
2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "24c" has been used to designate both a segment of connection 24 between ADM 14a and EN 18b and a segment of connection 24 between ADM 14a and XC 12b. One section should be "24d". A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.
3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "130" has been used to designate both the step of "n=n+1" and "route frame" in Fig. 4 (see page 25, line 24). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.
4. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "48a" has been used to designate multiple processor state machines where the specification discloses that the processor state machines are labeled "48a-d" (page 32, line 5;

page 34, lines 7 and 11; and Fig. 5). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

***Information Disclosure Statement***

5. The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609 A(1) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered. The following reference was not listed in the IDS: USPN 5,710,650.

6. Examiner requests that Applicant submit copies of the applications listed in the specification (see page 1, lines 4-11) and include these copies in an IDS.

***Specification***

7. The abstract of the disclosure is objected to because it exceeds 150 words in length. Correction is required. See MPEP § 608.01(b).

8. Examiner requests that Applicant update the application information seen page 1, lines 4-11; page 1, lines 21-25; and page 5, lines 1-5.

9. The disclosure is objected to because of the following informalities:

- on page 2, lines 19-20 "it can incorporated" should be "it can incorporate";
- on page 14, line 15 "has output ports are adapted" should be "has output ports adapted";
- on page 15, lines 6-8 "network 20" should be "network 22" and "gateway 22" should be "gateway 20" to match Fig. 1;

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- on page 15, line 20, page 16, lines 11 and 13, page 18, line 12, and page 30, lines 1 and 24 “ADM 14b” should be “ADM 14a” to match Figs. 1 and 2;
- on page 16, line 19 and page 17, lines 10 and 28 “10b” should be “18b” in order to match Fig. 2; on page 22, lines 9 and 16 “input port 28” should be “input port 31” to match Fig. 3;
- on page 23, line 19 “44a-44c” should be “44a-44d” to match Fig. 3;
- on page 29, line 26 “network 2” should be “network 10” to match Fig. 1;
- on page 34, lines 8 and 10 “56a-d” should be “56” in order to match Fig. 5;
- on page 34, line 13 “network 20” should be “20” or “network 10” to match Fig. 1;
- on page 34, line 30 “device 16b..” should be “device 16b.”; and
- on page 35, line 12 “connection 20” should be “connection 26”.

Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

10. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

11. Claim 28 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

12. Claim 28 recites the limitation "the split" in line 2. There is insufficient antecedent basis for this limitation in the claim. Claim 28 depends upon claim 21 where claim 21 does not contain the limitation “the split”. Claim 28 will be interpreted as containing the limitation “a split” rather than “the split”.

***Claim Rejections - 35 USC § 102***

13. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

14. Claims 1, 2, 5, 19-24, 28, 31-33, 38, and 40 are rejected under 35 U.S.C. 102(b) as being anticipated by Bleickardt et al (USPN 5,461,622).

15. Regarding claims 1, 19, and 31, Bleickardt discloses a method of and nodes for transporting a concatenated input signal (super-rate signal) across a network using signals transmitted over a hyper-concatenated connection between a start node and an end node in the network (col. 1, lines 42-58; col. 2, line 44-61; and col. 7, line 49-col. 8, line 12), the method comprising steps of: a) receiving the concatenated input signal at the start node and splitting the concatenated input signal into a plurality of derived signals (Fig. 2 and col. 4, lines 6-21); b) transmitting the derived signals over a predetermined number of independent channels at least one of the independent channels being routed through a pointer processing state machine that is independent of a pointer processing state machine through which another one of the independent channels are routed (col. 1, lines 25-36; col. 2, lines 13-43; and col. 2, line 61-col. 3, line 4); and c) recombining the derived signals at the end node to form a concatenated output signal equivalent to the concatenated input signal (Fig. 5 and col. 6, lines 6-25).

16. Regarding claim 2, referring to claim 1, Bleickardt suggests that the concatenated output signal is output from the end node at a signal phase that is arbitrarily related to a signal phase of the derived signals (col. 7, lines 36-48) where “arbitrarily” is a very broad term which covers any

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relationship between the signal phase of the concatenated output and the signal phase of a derived signal.

17. Regarding claims 5, 22, and 32, referring to claims 1, 19, and 31, Bleickardt discloses that the concatenated input signal comprises an arbitrary mix of concatenated and unconcatenated Synchronous Optical Network (SONET)/Synchronous Digital Hierarchy (SDH) signals (col. 1, lines 8-10; col. 1, lines 42-58; col. 2, line 44-61; and col. 7, line 49-col. 8, line 12).

18. Regarding claim 20, referring to claim 19, Bleickard discloses that each hyper-concatenated channel has a signal bandwidth expressed as an integer  $M$  (where  $M \geq 1$ ) of frames of the demultiplexed input signal to be transmitted over each respective channel (col. 1, lines 41-55; col. 2, lines 44-54; col. 4, lines 6-21; and col. 7, line 67-col. 8, line 11).

19. Regarding claim 21, referring to claim 20, Bleickard discloses that  $M$  is selected from a group consisting of: 1, 2, or an integer multiple of 3 (col. 1, lines 41-55; col. 2, lines 44-54; col. 4, lines 6-21; and col. 7, line 67-col. 8, line 11).

20. Regarding claim 23, referring to claim 22, Bleickard discloses that each frame is an STS- $n$  where  $n$  is an integer, and  $n \geq 1$  (col. 2, lines 55-61 and col. 7, line 67-col. 8, line 11).

21. Regarding claim 24, referring to claim 23, Bleickard discloses that  $n$  is equal to 1 (col. 2, lines 55-61 and col. 7, line 67-col. 8, line 11).

22. Regarding claim 28, referring to claim 21, Bleickardt discloses that the signal processor is adapted to determine the split in the concatenated input signal in real-time as the concatenated input signal is received by the network node (col. 4, lines 6-44).

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23. Regarding claim 33, referring to claim 31, Bleickardt discloses that the signal processor comprises, in respect of each hyper-concatenated data stream: a) an alignment buffer adapted to buffer payload data of a respective hyper-concatenated data stream (col. 7, lines 19-35); b) a pointer processor adapted to detect a frame received in a respective data stream and determine a location of payload data in the frame (col. 2, line 11-col. 3, line 4 and col. 3, lines 22-28); c) a read controller responsive to the pointer processor and adapted to read the buffered payload data in an aligned condition across the channels of the hyper-concatenated connection into the concatenated output signal (col. 7, lines 28-48).

24. Regarding claim 38, referring to claim 33, Bleickardt discloses that the alignment buffers have a predetermined storage capacity based on an anticipated maximum difference between propagation delays of the respective derived signals (Bleickard: col. 7, lines 19-35).

25. Regarding claim 40, referring to claim 38, Bleickardt discloses that the anticipated maximum difference between propagation delays of the respective derived signals is less than a time interval required to receive one of the frames at the end node (Bleickard: col. 7, lines 29-35).

***Claim Rejections - 35 USC § 103***

26. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

27. Claims 3, 4, 39, and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bleickardt et al (USPN 5,461,622).



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28. Regarding claim 3, referring to claim 1, Bleickardt discloses that the independent channels in the hyper-concatenated connection meet predetermined criteria, comprising: a) each of the channels are processed by adjacent pointer processors in the start node and the end node (Figs. 2 and 5; col. 2, line 11-col. 3, line 4); and b) the channel order is identical at the start node and the end node (Figs. 2-5). Bleickardt possibly does not expressly disclose that c) a maximum latency between the derived signals received at the end node on channels of the hyper-concatenated connection is less than a predetermined time interval; however, Bleickardt does disclose that the receiver is capable of realignment of frames that are misaligned by up to 64 frames (col. 3, lines 22-36 and col. 7, lines 19-35). Bleickardt also discloses that the receiver can be set to correct for a specific amount of through the length of the receiver's buffers (col. 7, lines 19-35). It would have been obvious to one of ordinary skill in the art at the time of the invention to determine the maximum latency between the derived signals in order to determine the size of the buffers in the receiver.

29. Regarding claim 4, referring to claim 3, Bleickardt discloses that the predetermined interval is less than a time period required to receive a frame from a one of the derived signals at the end node (col. 7, lines 29-35).

30. Regarding claim 39, referring to claim 38, Bleickardt does not disclose that the predetermined storage capacity is sufficient to store a quantity of payload data received in approximately twice the anticipated maximum difference between propagation delays of the respective frames of each derived signal since Bleickardt discloses that the predetermined storage capacity is sufficient to store a quantity of payload data received in approximately the anticipated maximum difference between propagation delays of the respective frames of each

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derived signal (Bleickard: col. 7, lines 29-35). However, it is generally considered to be within the ordinary skill in the art to adjust, vary, select, or optimize the numerical parameters or values of any system absent a showing of criticality in a particular recited value. The burden of showing criticality is on applicant. In re Mason, 87 F.2d 370, 32 USPQ 242 (CCPA 1937); Marconi Wireless Telegraph Co. v. U.S., 320 U.S. 1, 57 USPQ 471 (1943); In re Schneider, 148 F.2d 108, 65 USPQ 129 (CCPA 1945); In re Aller, 220 F.2d 454, 105 USPQ 233 (CCPA 1055); In re Saether, 492 F.2d 849, 181 USPQ 36 (CCPA 1974); In re Antonie, 559 F.2d 618, 195 USPQ 6 (CCPA 1977); In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). Since Bleickardt discloses that the predetermined storage capacity is sufficient to store a quantity of payload data received in approximately the anticipated maximum difference between propagation delays of the respective frames of each derived signal, it would have been obvious to one of ordinary skill in the art at the time of the invention to store any amount of data, including twice the amount of the anticipated maximum difference, absent a showing of criticality by Applicant.

31. Regarding claim 41, referring to claim 38, Bleickardt does not disclose that the predetermined storage capacity is adequate to store a quantity of payload data received during a time interval of about 250 uSec; however, Bleickardt discloses that an amount of data is stored in a predetermined storage capacity (Bleickard: col. 7, lines 29-35). It is generally considered to be within the ordinary skill in the art to adjust, vary, select, or optimize the numerical parameters or values of any system absent a showing of criticality in a particular recited value. The burden of showing criticality is on applicant. In re Mason, 87 F.2d 370, 32 USPQ 242 (CCPA 1937); Marconi Wireless Telegraph Co. v. U.S., 320 U.S. 1, 57 USPQ 471 (1943); In re Schneider, 148 F.2d 108, 65 USPQ 129 (CCPA 1945); In re Aller, 220 F.2d 454, 105 USPQ 233 (CCPA 1055);

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In re Saether, 492 F.2d 849, 181 USPQ 36 (CCPA 1974); In re Antonie, 559 F.2d 618, 195

USPQ 6 (CCPA 1977); In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). Since

Bleickardt discloses storing an amount a data in a predetermined storage capacity, it would have been obvious to one of ordinary skill in the art at the time of the invention to store any amount of data, including 250 uSec of data, absent a showing of criticality by Applicant.

32. Claims 6, 7, 13, 34, and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bleickardt et al (USPN 5,461,622) as applied to claims 1, 5, and 33 above, and further in view of Yoshifuji (USPN 5,537,405).

33. Regarding claim 6, referring to claim 5, Bleickardt does not disclose that the step of splitting the concatenated input signal into the plurality of derived signals comprises a step of inspecting an overhead of each frame of the concatenated input signal to determine whether the overhead contains a payload pointer or a concatenation indicator. Yoshifuji teaches, in a system for demultiplexing a concatenated data stream, inspecting an overhead of each frame of the concatenated input signal to determine whether the overhead contains a payload pointer or a concatenation indicator in order to determine how to process the signal depending on whether the signal is a concatenated or a non-concatenated signal (col. 1, line 56-col. 2, line 27). It would have been obvious to one of ordinary skill in the art at the time of the invention to inspect an overhead of each frame of the concatenated input signal to determine whether the overhead contains a payload pointer or a concatenation indicator in order to determine how to process the signal depending on whether the signal is a concatenated or a non-concatenated signal.

34. Regarding claim 7, referring to claim 6, Bleickardt in view of Yoshifuji discloses storing the payload pointer if a payload pointer is found in the overhead (Yoshifuji: col. 5, lines 11-30)

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where it is implicit that if the concatenation indicators of the concatenated signals are to be replaced with pointers of the first stream of the concatenated signal that the pointers of the streams must be stored such that the pointers can be retrieved during the replacement process.

35. Regarding claims 13, 34, and 37, referring to claims 1 and 33, Bleickardt discloses c) reading out payload data of the derived signals in alignment across all of the channels of the hyper-concatenated connection to provide the concatenated output signal (Figs. 3-5; col. 6, lines 6-25; and col. 7, lines 19-66). Bleickardt does not disclose that the step of recombining the derived signals at the end node to form a concatenated output signal further comprises steps of: a) examining an overhead of each frame of the derived signals to determine whether the overhead includes a split indicator; b) if the overhead includes a split indicator, replacing a payload pointer in the overhead with a concatenation indicator. Yoshifuji teaches, in a system for demultiplexing a concatenated data stream, replacing concatenation indicator values of each demultiplexed data stream with preset fixed values in order to have each demultiplexed data stream be treated on an individual basis (col. 1, line 6-col. 2, line 55). Yoshifuji also teaches placing concatenation indicator values in the headers of each derived signal in order to multiplex the derived signals into a concatenated signal in which all of the derived signals are treated as a single data unit for more efficient transmission (col. col. 1, line 56-col. 2, line 27). It would have been obvious to one of ordinary skill in the art at the time of the invention to a) examine an overhead of each frame of the derived signals to determine whether the overhead includes a preset value; b) if the overhead includes a preset value, replacing a payload pointer in the overhead with a concatenation indicator in order to multiplex the derived signals into a concatenated signal in which all of the derived signals are treated as a single data unit for more

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efficient transmission. Bleickardt in view of Yoshifuji does not expressly disclose that the preset value is a split indicator; however, split indicators, such as sequence numbers, are well known in the art of inverse multiplexing in order to provide the receiver a means to determine the proper sequence in which to recombine the derived signals. It would have been obvious to one of ordinary skill in the art at the time of the invention to use split indicators for the preset values in order to provide the receiver a means to determine the proper sequence in which to recombine the derived signals.

36. Claims 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bleickardt et al (USPN 5,461,622) in view of Yoshifuji (USPN 5,537,405) as applied to claims 1, 5, and 33 above, and further in view of Sugawara et al (USPN 6,094,440).

37. Regarding claims 8 and 9, referring to claim 7, Bleickardt in view of Yoshifuji does not expressly disclose setting SS bits of an H1 byte of the overhead portion of the frame to a default value. Sugawara discloses that the SS bits in SONET are undefined and that "in the SONET system, the undefined bit is '0', so that the SS bits are made to be '00'" (col. 1, lines 50-65). It would have been obvious to one of ordinary skill in the art at the time of the invention to set the SS bits of an H1 byte of the overhead portion of the frame to a default value of "00" since in the SONET system the SS bits are undefined and the undefined bit is '0'.

38. Claims 14-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bleickardt et al (USPN 5,461,622) in view of Yoshifuji (USPN 5,537,405) as applied to claim 13 above, and further in view of Parruck et al (USPN 5,257,261).

39. Regarding claim 14, referring to claim 13, Bleickardt in view of Yoshifuji discloses controlling a read operation for reading the payload data of a derived data stream from a

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reference alignment buffer such that a position of a derived read pointer permits corresponding payload data to be read simultaneously from each derived data stream (Bleickardt: Figs. 3-5; col. 6, lines 6-25; and col. 7, lines 19-66); and d) reading the payload data of each derived data stream from respective alignment buffers based on the reference read operation, so that payload data of each of the data streams is read from the respective alignment buffers in alignment with corresponding payload data of a derived data stream (Figs. 3-5; col. 6, lines 6-25; and col. 7, lines 19-66). Bleickardt in view of Yoshifuji does not disclose that the step of reading out the payload data of the derived signals received at the end node comprises steps of: a) designating a data stream in the hyper-concatenated connection as a reference data signal; b) designating all other data streams of the hyper-concatenated connection as slaves to the reference data stream; c) controlling a read operation for reading the payload data of the reference data stream from a reference alignment buffer such that a position of a reference read pointer permits corresponding payload data to be read simultaneously from each slave data stream; and d) reading the payload data of each slave data stream from respective slave alignment buffers based on the reference read operation, so that payload data of each of the slave data streams is read from the respective slave alignment buffers in alignment with corresponding payload data of the reference data stream. Parruck teaches, in a system for concatenating a plurality of data streams, a) designating a data stream in the low rate connection as a reference data signal (master) (Fig. 1b and col. 3, lines 42-68); b) designating all other data streams of the data connection as slaves to the reference data stream (Fig. 1b and col. 3, lines 42-68); c) controlling a read operation for reading the payload data of the reference data stream from a reference alignment buffer such that a position of a reference read pointer permits corresponding payload data to be read simultaneously from

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each slave data stream (Fig. 1b; col. 3, lines 49-54; col. 8, lines 45-68; and col. 13, lines 23- 54); and d) reading the payload data of each slave data stream from respective slave alignment buffers based on the reference read operation, so that payload data of each of the slave data streams is read from the respective slave alignment buffers in alignment with corresponding payload data of the reference data stream (Fig. 1b; col. 3, lines 49-54; col. 8, lines 45-68; and col. 13, lines 23- 54) in order to provide a means for concatenating any number of signals (col. 3, lines 15-23). It would have been obvious to one of ordinary skill in the art at the time of the invention to a) designate a data stream in the hyper-concatenated connection as a reference data signal; b) designate all other data streams of the hyper-concatenated connection as slaves to the reference data stream; c) control a read operation for reading the payload data of the reference data stream from a reference alignment buffer such that a position of a reference read pointer permits corresponding payload data to be read simultaneously from each slave data stream; and d) read the payload data of each slave data stream from respective slave alignment buffers based on the reference read operation, so that payload data of each of the slave data streams is read from the respective slave alignment buffers in alignment with corresponding payload data of the reference data stream in order to provide a means for concatenating any number of signals.

40. Regarding claim 15, referring to claim 14, Bleickardt in view of Yoshifuji in further view of Parruck discloses that the alignment buffers have a predetermined storage capacity based on an anticipated maximum difference between propagation delays of the respective derived signals (Bleickard: col. 7, lines 19-35).

41. Regarding claim 16, referring to claim 15, Bleickardt in view of Yoshifuji in further view of Parruck discloses that the anticipated maximum difference between propagation delays of the

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respective derived signals is less than a time interval required to receive one of the frames at the end node (Bleickard: col. 7, lines 29-35).

42. Regarding claim 17, referring to claim 15, Bleickardt in view of Yoshifuji in further view of Parruck does not disclose that the predetermined storage capacity is sufficient to store a quantity of payload data received in approximately twice the anticipated maximum difference between propagation delays of the respective frames of each derived signal since Bleickardt in view of Yoshifuji in further view of Parruck discloses that the predetermined storage capacity is sufficient to store a quantity of payload data received in approximately the anticipated maximum difference between propagation delays of the respective frames of each derived signal (Bleickard: col. 7, lines 29-35). However, it is generally considered to be within the ordinary skill in the art to adjust, vary, select, or optimize the numerical parameters or values of any system absent a showing of criticality in a particular recited value. The burden of showing criticality is on applicant. In re Mason, 87 F.2d 370, 32 USPQ 242 (CCPA 1937); Marconi Wireless Telegraph Co. v. U.S., 320 U.S. 1, 57 USPQ 471 (1943); In re Schneider, 148 F.2d 108, 65 USPQ 129 (CCPA 1945); In re Aller, 220 F.2d 454, 105 USPQ 233 (CCPA 1055); In re Saether, 492 F.2d 849, 181 USPQ 36 (CCPA 1974); In re Antonie, 559 F.2d 618, 195 USPQ 6 (CCPA 1977); In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). Since Bleickardt in view of Yoshifuji in further view of Parruck discloses that the predetermined storage capacity is sufficient to store a quantity of payload data received in approximately the anticipated maximum difference between propagation delays of the respective frames of each derived signal, it would have been obvious to one of ordinary skill in the art at the time of the invention to store any



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amount of data, including twice the amount of the anticipated maximum difference, absent a showing of criticality by Applicant.

43. Regarding claim 18, referring to claim 17, Bleickardt in view of Yoshifuji in further view of Parruck does not disclose that the predetermined storage capacity is adequate to store a quantity of payload data received during a time interval of about 250 uSec; however, Bleickardt in view of Yoshifuji in further view of Parruck discloses that an amount of data is stored in a predetermined storage capacity (Bleickard: col. 7, lines 29-35). It is generally considered to be within the ordinary skill in the art to adjust, vary, select, or optimize the numerical parameters or values of any system absent a showing of criticality in a particular recited value. The burden of showing criticality is on applicant. In re Mason, 87 F.2d 370, 32 USPQ 242 (CCPA 1937); Marconi Wireless Telegraph Co. v. U.S., 320 U.S. 1, 57 USPQ 471 (1943); In re Schneider, 148 F.2d 108, 65 USPQ 129 (CCPA 1945); In re Aller, 220 F.2d 454, 105 USPQ 233 (CCPA 1055); In re Saether, 492 F.2d 849, 181 USPQ 36 (CCPA 1974); In re Antonie, 559 F.2d 618, 195 USPQ 6 (CCPA 1977); In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). Since Bleickardt in view of Yoshifuji in further view of Parruck discloses storing an amount a data in a predetermined storage capacity, it would have been obvious to one of ordinary skill in the art at the time of the invention to store any amount of data, including 250 uSec of data, absent a showing of criticality by Applicant.

44. Claims 35 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bleickardt et al (USPN 5,461,622) as applied to claim 33 above, and further in view of Parruck et al (USPN 5,257,261).

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45. Regarding claim 35, referring to claim 33, Bleickardt does not disclose a) designating a data stream in the hyper-concatenated connection as a reference data signal; and b) designating all other data streams of the hyper-concatenated connection as slaves to the reference data stream. Parruck teaches, in a system for concatenating a plurality of data streams, a) designating a data stream in the low rate connection as a reference data signal (master) (Fig. 1b and col. 3, lines 42-68); b) designating all other data streams of the data connection as slaves to the reference data stream (Fig. 1b and col. 3, lines 42-68) in order to provide a means for concatenating any number of signals (col. 3, lines 15-23). It would have been obvious to one of ordinary skill in the art at the time of the invention to a) designate a data stream in the hyper-concatenated connection as a reference data signal; and b) designate all other data streams of the hyper-concatenated connection as slaves to the reference data stream in order to provide a means for concatenating any number of signals.

46. Regarding claim 36, referring to claim 35, Bleickardt does not disclose that a reference read controller is adapted to control a reference read operation for reading payload data of the reference data stream from a respective reference alignment buffer so that payload data from each of the slave data streams can be read by respective slave read operations in alignment with the reference data stream. Parruck teaches, in a system for concatenating a plurality of data streams, having a reference read controller adapted to control a reference read operation for reading payload data of the reference data stream from a respective reference alignment buffer so that payload data from each of the slave data streams can be read by respective slave read operations in alignment with the reference data stream (Fig. 1b; col. 3, lines 49-54; col. 8, lines 45-68; and col. 13, lines 23- 54) in order to provide a means for concatenating any number of

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signals (col. 3, lines 15-23). It would have been obvious to one of ordinary skill in the art at the time of the invention to have a reference read controller adapted to control a reference read operation for reading payload data of the reference data stream from a respective reference alignment buffer so that payload data from each of the slave data streams can be read by respective slave read operations in alignment with the reference data stream in order to provide a means for concatenating any number of signals.

***Allowable Subject Matter***

47. Claims 10-12, 25-27 and 29-30 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

48. Claims 10-12 are allowable because it would not have been obvious to one of ordinary skill in the art at the time of the invention to compare a frame count with a predetermined constant to determine if the frame should be transmitted over a next independent channel in the hyper-concatenated connection or inserting a split indicator into the SS bits based on the prior art. Prior art teaches interleaving bytes of the concatenated signal in order to decrease latency. Prior art is silent about indicating a split indicator in the SS bits.

49. Claims 25-27 and 29-30 are allowable because it would not have been obvious to one of ordinary skill in the art at the time of the invention to have means for identifying each frame within the concatenated input signal that satisfies a condition  $(p \cdot M) + I$ , for integers  $p$ , in order to determine a split location for the concatenated input signal. Prior art teaches interleaving bytes of the concatenated signal in order to decrease latency.

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*Conclusion*

50. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Parruck et al (USPN 5,331,641) see entire document which pertains to retiming and realigning STS-1 signals into STS-3 signals. Partridge et al (USPN 6,160,819) see col. 1, line 41-col. 4, line 60 which pertain to inverse multiplexing. Bowmaster (USPN 5,455,832) see col. 4, line 45-col. 5, line 27 which pertains to concatenation indications.

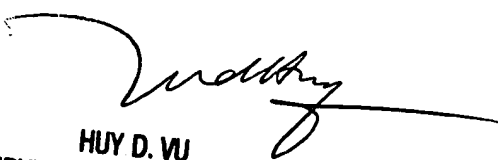
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel J. Ryman whose telephone number is (703)305-6970. The examiner can normally be reached on Mon.-Fri. 7:00-5:00 with every other Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu can be reached on (703)308-6602. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)305-3900.

Daniel J. Ryman  
Examiner  
Art Unit 2665

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